CONTINGENCY RESPONSE GROUPS: AN ANALYSIS OF MAINTENANCE TRAINING

GRADUATE RESEARCH PAPER

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ABSTRACT

The concept of a Contingency Response Group (CRG) as a "quick reaction force" is still fairly new. The initial trial in Operation ALLIED FORCE proved a success but as time passes the necessity to transform this "quick reaction force" to be ready to react to "today's" crisis becomes imperative. With the increasing involvement in humanitarian relief and the increase in civilian aircraft used in these efforts, the proper balance of which aircraft CRG members are trained and qualified on needs to be reevaluated.

This paper is qualitative in nature and utilizes a case study approach to present the types of aircraft the CRG should focus on in training CRG maintenance technicians. The paper continues by offering data and facts on how to get this training and ultimately makes recommendations to the commanders for a decision point. A variety of tools were used to gather data, including CRG maintenance technician surveys, personal interviews of key personnel, telephone interviews, literature research and email. The units studied were members of the 818th Global Mobility Squadron and the 819th Global Mobility Squadron assigned under the 621st CRG.

The results of the research indicate that C-17, C-130, C-5 and commercial aircraft are important for CRG maintainers to be trained on for humanitarian contingencies. C-17 and C-5 aircraft have a requirement levied by instruction for the CRG maintainers to possess some sort of capability on.

To increase the portfolio of maintenance capability for humanitarian contingencies, it is recommended that the CRG maintain the current C-17 and C-5 training while establishing a training program to train and qualify maintenance personnel on C-130 and commercial aircraft.

To my wife for her support and constant understanding through the multiple TDYs and the demands of the ASAM program. Thank you for your encouragement and motivation.

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Part I

INTRODUCTION

BACKGROUND

In October 2001, the Chief of Staff of the Air Force directed the stand-up of Task Force Enduring Look (TFEL) to analyze, document and report on the ongoing efforts in Operations NOBLE EAGLE and ENDURING FREEDOM (Wathen, 2004). The task force's "Quick Look no. 9" identified air traffic control and air field operations as areas that required improvement. It was assessed that in today's expeditionary environment, the Air Force needed a unique subset of capabilities designed specifically to respond rapidly to contingencies as well as secure and protect airfields, rapidly assess and open air bases, and perform initial air base operations to ensure a smooth transition for a more permanent team to take over (Walthen, 2004). Out of this inquiry and subsequent findings spawned the development of the Contingency Response Group (CRG). The Air Mobility Command (AMC) Contingency Response Wings (CRW) stood up in 2005 with a west-coast element stationed at Travis Air Force Base in California (615th CRW) and an east-coast element stationed at Joint Base McGuire-Dix-Lakehurst (621st CRW) (Welser, 2005). Although there are many job sets to opening, protecting, and operating an air base, this research will specifically focus on the aircraft maintenance capabilities of operating an air base.

CRG aircraft maintenance personnel are tasked to perform "quick turn" maintenance on multiple types of aircraft. Although the "quick turn" term can be misleading, in general to an aircraft maintenance technician it means to be able to recover, service and launch an aircraft. Sometimes this involves changing worn tires,

servicing oil, fuel or hydraulic fluid, towing, jacking and several other basic maintenance tasks.

CRG leaders continue to search for the most effective way to keep their maintenance personnel trained and proficient on different types of aircraft used in contingency operations. With the recent increase of humanitarian operations across the globe, leaders are looking to provide CRG personnel quality training on civilian aircraft while maintaining proficiency on key military aircraft.

MOTIVATION

The motivation to do this research over the many other topic areas offered has several different dimensions. One dimension is to add to the body of knowledge in this specific area. An exhaustive search for literature on this topic was performed. As discussed earlier, the CRG's are fairly new so there was not much literature to offer. An attempt needs to be made to offer some scholarly research to this topic area to arm commanders with accurate information to make decisions with. This research will add to the limited amount of literature offered on this subject.

Furthermore, the current training system may be forcing maintainers to work on unfamiliar aircraft types creating an unsafe environment and possibly unsafe aircraft. Qualification and proficiency will allow for a safe work environment and safe aircraft to complete the contingency missions.

Motivation is also derived from field commanders to have research accomplished in this area and make recommendations to them for consideration. Both a CRG Commander and a Global Mobility Squadron (GMS) Commander aligned under the CRG

have voiced a concern in regards to civilian aircraft training and qualification as well as multiple military aircraft qualifications and proficiency.

PROBLEM STATEMENT

Leaders need to be able to distinguish between being proficient at a task and being qualified on a task. Merriam-Webster's on-line dictionary defines qualified as "having complied with the specific requirements or precedent conditions" and proficient as "well advanced in an art, occupation, or branch of knowledge" (2010). As one can tell by the two definitions, being qualified in something does not mean that a person is proficient. If the Air Force is going to task Airmen to deploy and maintain basic "quick turn" capability, maintainers need to be trained so that they are qualified and proficient on the aircraft they are most likely to maintain.

The CRG and its mission are just now approaching their sixth year of existence. Scholarly research on this topic and similar topics will contribute to the limited amount of knowledge for this new mission area. By making Air Force CRG leaders aware of shortfalls and possible solutions that impact the maintenance capabilities of their teams, they can put fixes in place to enhance mission effectiveness and efficiency. Velocity of aircraft throughput has been deemed vital by past contingency operations (Cooper, 2010). If aircraft maintenance personnel are qualified and proficient on contingency aircraft types, velocity should increase. Also, the current training system may be forcing maintainers to work on unfamiliar aircraft types creating an unsafe environment and possibly unsafe aircraft. Qualification and proficiency will allow for a safe work environment and safe aircraft to complete the contingency missions.

Due to the changing global environment and the increase need for humanitarian relief operations, the CRG maintenance technicians receive insufficient training and therefore lack qualification and proficiency on aircraft used to support worldwide contingency missions.

RESEARCH QUESTIONS

The questions for which answers will be sought include, what aircraft do CRG maintenance personnel need to be qualified and proficient on in order to provide basic maintenance? Are CRG maintenance personnel appropriately trained to provide basic maintenance on worldwide contingency aircraft? What general training guidance will help ensure CRG maintenance personnel are qualified and proficient on worldwide contingency aircraft?

RESEARCH FOCUS

The research will focus on different maintenance training techniques employed by civilian airlines and military units with similar missions to the CRG. The literature review will start with Advanced Study of Air Mobility and Air Force Institute of Technology Graduate Research Projects, logistics journals and peer reviewed work related to the problem. Data collected from the CRGs, other similar military units and civilian airlines will be interpreted and analyzed.

METHODOLOGY

The methodology utilized in this project is primarily that of a qualitative case study of aircraft maintenance training needs. Some background information will be provided though a literature review and examination of current practices. The methodology will be further explored in Part III of this paper.

Part II

LITERATURE REVIEW

An enormous amount of research is available on the topic of training. Unfortunately, as aircraft maintenance training applies to contingency operations and qualifications and training on multiple types of aircraft, the amount of research material available dramatically decreases. Literature was reviewed to initially gain a better understanding of where the concept of a "quick response force" originated from. The review then began to focus more specifically on the aircraft maintenance piece of the "quick response" force and some literature on how to expand the training of the aircraft maintenance piece to match the needs in the field.

RAPIDLY DEPLOYING AEROSPACE POWER

General John Jumper discusses the formulation of the first CRG in an after action report concerning the war in Albania, Operation ALLIED FORCE. At the time of the article General Jumper was the EUSAFE Commander. During this operation he noticed just how stovepiped Air Force units were. Air Force units were packaged in specific unit type codes (UTCs) generally by the Air Force Specialty Code (AFSC) creating some confusion on where to pull forces from for quick reaction to contingencies. Furthermore, he describes large and cumbersome survey teams being assembled creating not only more confusion but also intimidating friendly nations. Spawned from these thoughts, the Contingency Response Group would be born.

General Jumper received approval from the Chief of Staff, General Michael Ryan to stand up the 86th CRG as a test bed to improve the Air Forces ability to rapidly respond to crisis. The new group demonstrated the value of an organized "first in"

capability (Jumper, 1999). The group would be a multi-disciplinary team that would work together to be the first on-scene force to take control of an airfield, assess it and prepare it for expeditionary air forces to arrive and begin to operate. The group had two squadrons, an Air Mobility Squadron (AMS) and a Security Forces Squadron (SFS) with a little over 140 personnel assigned consisting of over 40 specialties. The group could be supplemented with additional personnel to expand or contract with the size of the operation being supported.

The expansion of the group would be done on a three tier system. The first tier would be personnel not assigned to the group but would train and exercise with the group as augmentees on a daily basis. Tier 1 personnel were assigned "by name" as augmentees (Jumper, 1999). The second tier would also work closely with the group to train and exercise but would not be listed "by name" or specifically identified as augmentees. The third tier would provide forces through the normal channels of the UTC process (Jumper, 1999).

The 86th CRG reached initial operating capacity on 20 March 1999 and would shortly be put into action as Milosevic increased his ethnic cleansing operation (Jumper, 1999). Many governmental and nongovernmental agencies began flooding in to lend support creating a "fog" over the operation (Jumper, 1999). The unknown status of the Tirana Airfield in Albania led the Joint Task Force (JTF) Commander (Major General Hinton) to call on the 86th CRG. Hours after landing the 86th had secured the base and began offloading supplies. The 86th CRG went on to provide on-scene support for many military and civilian organizations. One stumbling block was that the Albanians were incapable of operating the intense amount of air traffic (Jumper, 1999). The 86th CRG

quickly responded when given the nod and turned 10 arrivals and departures a day into 400 (Jumper, 1999). The care and feeding of the misplaced Albanians was due in large part to the quick reaction of the 86th CRG (Jumper, 1999).

The initial test of this "quick reaction" force proved successful. The cumbersome process of sifting through UTCs and waiting for the large survey teams was overcome by having the CRG tailored correctly and ready to go at a moments notice. Now it was time to fine tune the organization and make improvements.

The first problem encountered was that the CRG was so successful that no one wanted to let them go home and reset for the next operation. Having an exit strategy up front was deemed important. Talking to some of the members of the 621st CRG this is still a small problem today. The initial exit strategy appears to shift to the right. Although this places a burden on the CRG to be able to reset for the next deployment, at a minimum there is an exit strategy and the return date typically does not drag out too long. Another area identified was security. The 86th CRG went into Tirana unopposed. General Jumper suggested an examination of the forces to ensure that the CRG would be successful in securing the air base and add the ability to coordinate with other military units to help provide the security needed. Out of the success of this operation the development of doctrine and instruction began to come to the forefront.

EXPEDITIONARY AIR MOBLITY SUPPORT OPERATION

AMCI 10-202 Volume 4 provides relevant information to the subject being studied. It describes the basic procedures and resources needed for the AMC Commander to provide the capability to operate at world-wide locations through the use of deployable Command and Control (C2) units, aerial port services, aircraft maintenance

capabilities and other contingency support forces (AMCI 10-202 V4). Furthermore, the instruction breaks down the different units that comprise the Contingency Response Wing (CRW). The CRW is aligned under an Expeditionary Mobility Task Force and is the active duty unit in which the CRGs and the Contingency Operations Support Groups (COSG) reside in. The CRG's home mission is to ensure Force Module 1 (Open the Airbase) is prepared to support the combatant commander by opening airfields in a permissive, uncertain or hostile environment (AMCI 10-202 V4). The goal of the CRG is to open and operate an air base once seized. The Global Support Squadrons (GSS) at home mission is to train and prepare to deploy contingency response forces to locations where the en-route support for air mobility operations is insufficient or nonexistent (AMCI 10-202 V4). These squadrons are comprised mostly of deployable forces that need to be ready to go within 12 hours of notification. The instruction goes on to define deployable units and their mission. These units are scalable for the contingency event they are going to support. The units can range from a full up CRG down to a specific airfield survey team (AST) depending on the type of services needed.

More specifically to aircraft maintenance, the instruction in general terms states that the aircraft maintenance element provides quick-turn services through basic crew chief skills to assist transiting aircraft. Furthermore, the aircraft maintenance function should provide support to launch, recover, and refuel transient aircraft. Of note, changes from normal field operations include Aerospace Ground Equipment (AGE) and Petroleum, Oil and Lubricant (POL) sections. AGE normally falls under aircraft maintenance but now resides within vehicle maintenance and POL now resides in maintenance when normally assigned to the Logistics Readiness Squadron (LRS). The

instruction states that aircraft maintenance personnel will be trained in tasks, " which enable them to provide the initial duties required to support marshaling of various aircraft types, to include commercial aircraft" (AMCI 10-202 V4). "Air Mobility Control Units (AMCUs) will ensure deployed teams have sufficient numbers of personnel qualified to support the C-5 and C-17 aircraft as a minimum" (AMCI 10-202 V4). This mandates that CRGs must train certain numbers of people on these two aircraft types. The instruction also directs aircraft maintenance personnel to comply with contingency response proficiency training, and maintain currency and proficiency on aircraft by working with the local maintenance units or by going off station as required. This can be difficult for some units that only locally have C-17 aircraft but do not regularly see C-5 aircraft. The 621 CRG must send members to Dover AFB, DE to qualify on the C-5 and maintain proficiency due to not having the aircraft on-station at Joint Base McGuire-Dix-Lakehurst (JBMDL). Another issue on this point is civilian aircraft qualification. Transient Alert (TA) maintenance function might be used at JBMDL to train aircraft maintainers on civilian aircraft but the TA maintenance function is by civilian contract maintenance causing an issue with allowing active duty forces to engage in TA maintenance activities at JBMDL. The instruction continues to discuss the organizational structure of the 18th Air Force down to the squadrons that make up the CRGs. The below figures represent how the CRGs were originally organized.

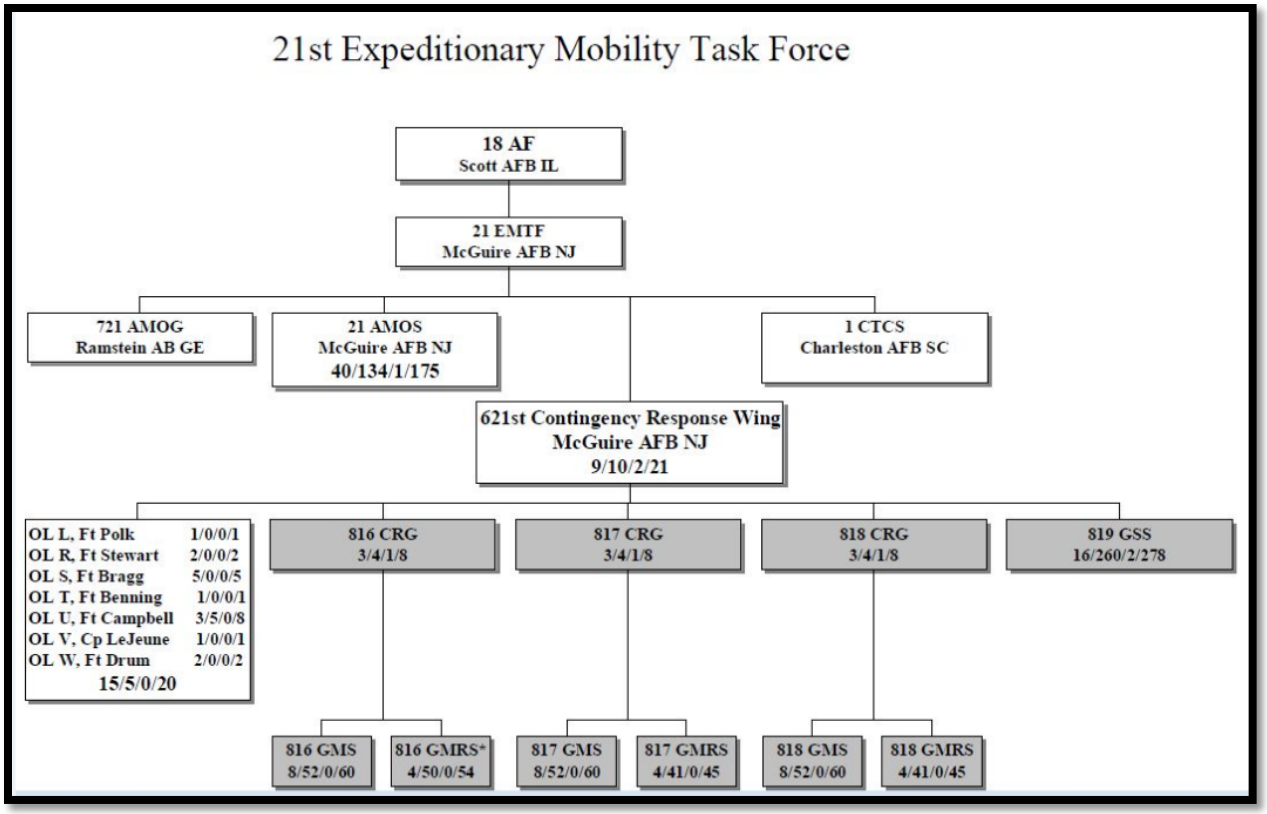


Figure 1. 621 CRW Organization Chart

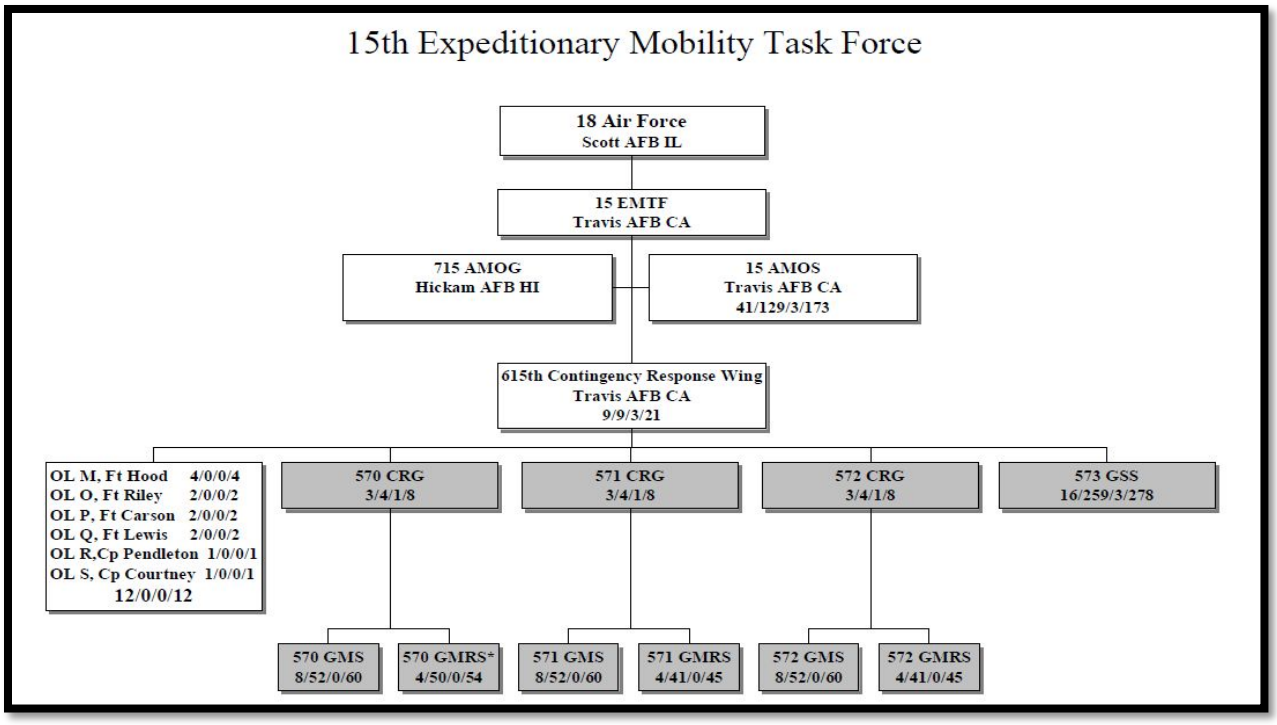


Figure 2. 615 CRW Organization Chart

After Action Report: USTRANSCOM Joint Task Force Port Opening – APOD Operation UNIFIED RESPONSE

On January 12, 2010, the country of Haiti was devastated by a 7.0 magnitude earthquake. Approximately 210,000 Haitians were killed and many displaced and left without food or water in the midst of rubble. In response, United States Transportation Command (USTRANSCOM) tasked an Air Force CRG and an Army Rapid Port Opening Element (RPOE) to form a Joint Task Force –Port Opening (JTF-PO) and deploy to Port-au-Prince, Haiti. The mission given to the JTF-PO was to safely run aerial port operations and maximize humanitarian assistance throughput (After Action Report, 2010).

Two days later the Joint Assessment Team (JAT) arrived and began assessing the situation. International relief flights were landing faster than they could be downloaded creating turmoil. There was not enough parking available for all the flights. The control tower on the airfield had received severe damage and wasn't usable in its current condition. Aircraft were being controlled by combat controllers from a table set-up in the field (After Action Report, 2010). The next task of the JTF-PO was to begin off-loading aircraft, provide airfield security and set up the camp (After Action Report, 2010).

The JTF-PO leadership met with the Prime Minister of Haiti to gain permission to begin prioritizing airflow into Haiti. The Prime Minister granted the permission but also established the ability for either party to terminate the agreement. Some countries took note and began to voice negative concerns over the U.S. having the airspace authority. The JTF-PO team knew that this was not only going to be a humanitarian mission but also a building partnership challenge (After Action Report, 2010).

The JTF-PO continued working with other teams to build the overall plan. The U.S. stood up a slot management office out of Tyndall Air Force Base, Florida. This office was named the Haiti Flight Operations Control Center (HFOCC). They established an approval process where only aircraft that had a pre-approved slot were authorized to land. The JTF-PO worked with the HFOCC to update the model by setting up meetings with the Haitian Civil Airport Authority Director General establishing trust with U.S. and Haiti (After Action Report, 2010). This allowed for Haiti to receive priority in the HFOCC's system.

The RPOE was also crucial in making order out of chaos. The set up of a forward distribution node was a key to keeping the cargo yard uncluttered. The forward distribution node was set up a short distance away to decrease transit time and to keep the cargo secure as security forces were limited (After Action Report, 2010).

Passenger processing also became a critical issue for the JTF-PO. The passenger terminal had received significant damage forcing the operations to move to the flight line. American citizen (AMCIT) evacuations became just as important as downloading the cargo for the relief mission. Eventually, manifesting of the AMCITs would fall to the U.S. Embassy but the JTF-PO would still oversee boarding of the military aircraft (After Action Report, 2010).

Although the AMCIT process was difficult, the adoptee process became the biggest challenge. This was a high visibility mission set with senator, congressional, or governor level sponsorship complicating procedures and delaying missions (After Action Report, 2010).

One of the last things the JTF-PO needed to do was to begin to transfer the management of the airfield to the Government of Haiti. The government was brought into meetings as they were moved to Haitian facilities and a focus was placed on the government being the face of all decisions (After Action Report, 2010).

Figure 4 summarizes the JTF-PO mission data from Operation UNIFIED RESPONSE. Of note is the number of C-17 and C-130 missions compared to the number of U.S. Commercial missions. Also noted from looking at this chart is the lack of any C-5 missions. This is important in determining which aircraft CRG maintainers need to be trained and qualified on for humanitarian relief type missions.

MISSION DATA Operation UNIFIED RESPONSE	
C-17 Missions/Sorties	253/506
C-130 Missions/Sorties	283/566
US Commercial Missions/Sorties	1339/2678
International Missions/Sorties	1131/2262
TOTAL Missions/Sorties	3006/6012
Air Evacuation Missions:	301 Litter, 10 Ambulatory
Off-Load Passengers:	9,509
Off-Load Cargo:	15,450 ST
On-Load Passengers:	15,495
On-Load Cargo:	253 ST

(After Action Report, 2010)

Table 1. Mission Data Operation UNIFIED RESPONSE

United States Air Force Airframe and Powerplant (A&P) Certification Program

The Airlift/Tanker Association hosted its 42nd convention in Orlando, Florida on 28 October 2010 through 31 October 2010. During this convention a briefing was given on how a military aircraft mechanic can gain A&P certification. This briefing was given by the Community College of the Air Force (CCAF). The purpose of the Air Force A&P

program is to provide Air Force aircraft maintenance technicians an opportunity to obtain Federal Aviation Administration (FAA) professional certification. What this means for the CRG is the ability for military aircraft maintenance technicians to work on civilian aircraft transiting contingency locations. Although qualification and proficiency training is needed, A&P licensure opens the door. Many aircraft maintenance AFSCs are eligible to include the 2A5X1 career field of the CRG maintainers. This program consists of 4 tiers of training and experience. The 4 tiers are On-The-Job Training (OJT), 3 Air University online A&P specialized courses, documented evidence of 30 months practical experience in airframe and powerplant systems and 4 years time-in-service (CCAF, 2010). Most CRG maintainers will have the 30 months practical experience and the 4 years time-in-service complete by the time they are assigned to the CRG.

The next step would be for the aircraft maintainer to enroll via the CCAF website. CCAF will then evaluate the maintainers CCAF academic record to see what will apply to the program. CCAF will then build a Qualification Training Package (QTP), credit applicable requirements according to the evaluation performed earlier and email the QTP to the maintainer with instructions on how to begin (CCAF, 2010).

The 3 Air University on-line courses are A&P Mechanic General, A&P Mechanic Airframe, and A&P Mechanic Powerplant. The maintainer would complete these courses on-line by creating an account with Air University. Air University also offers progress exams to test knowledge gained from the course material. After all the QTP requirements are completed, CCAF will issue a Certificate of Eligibility. This certificate serves the same as graduating from an Aviation Maintenance Technical School and meets FAA eligibility requirements (CCAF, 2010).

After the receipt of the Certificate of Eligibility the maintenance technician will contact the FAA Flight Standards District Office to schedule an appointment with an Airworthiness Safety Inspector (ASI). The ASI will look over the paperwork presented and issue a FAA Form 8610-2, authorizing the maintenance technician to take the FAA exams. The FAA exams consist of knowledge and skill based exams. The knowledge based exams are computerized and have three parts. The general exam is 50 questions, the airframe and powerplant exams are 100 questions each. The skill portion of the exams consists of oral and practical exams. A passing score of 70% is required for all of the exams (CCAF, 2010). To take the exams maintenance technicians should contact the base education center first. If the base education center is an approved FAA testing center there may not be any cost for test administration. If the education center is not approved, the maintenance technician would need to locate the nearest FAA testing location and pay applicable fees.

After passing the three FAA knowledge exams, the maintenance technician would need to contact a Designated Mechanic Examiner (DME) in the local area to complete the oral and practical exams. After passing the oral and practical exams, the DME will issue a temporary certificate and the FAA will issue a permanent certificate within 120 days (CCAF, 2010).

After an interview with Mr. Phil Stauffer from the Philadelphia Flight Standards District Office (FSDO), the airframe certificate would be the only certificate needed to be able to perform general servicing of U.S. flagged aircraft. CRG maintenance technicians would not have to take the powerplant portion to do general servicing.

Figure 3. Air Force Airframe and Powerplant Certification Roadmap

(https://augateway.maxwell.af.mil/ccaf/certifications/faa_pubs/Roadmap.pdf)

AMERICAN AIRMEN A&P MECHANICS COURSE

Once the maintenance technician meets the requirements to take the FAA series of test to receive the A&P certification he or she may take a course to help them prepare for the series of exams. There are many schools available to do this. One such school is the Heritage Flight Academy in Long Island, New York.

The school's A&P Aviation Mechanic Course is a seven to ten day program designed to help the applicant score highly on the prerequisite A&P FAA written exams and pass the oral and practical exams administered by the DME. The school's program consists of three phases. Phase 1 is the written preparation phase. This initial phase comprises the bulk of the course and is designed to help candidates learn the necessary material and pass the required exams. This is achieved through a combination of instructor lecture, self guided on-site computerized study, and on-site computer based practice exams (Heritage Flight Academy, 2011).

Phase 2 is the oral & practical preparation phase. This phase consists of powerpoint presentations and hands-on participation. It helps prepare the maintenance technician for the oral and practical examination with the DME. Knowledge regarding aircraft structure, propulsion, controls, instruments, wiring, landing gear, and all the rules governing airplane logbook signoffs, and much more will be covered in detail (Heritage Flight Academy, 2011).

In Phase 3 Heritage Flight Academy will schedule the oral and practical exams with a local DME. The cost for the program is $1375.00.

Although taking a preparation class is not necessary, it will greatly enhance the chances of CRG aircraft maintainers to perform well on the FAA and DME series tests.

Part III

METHODOLOGY

A case study methodology was employed to gain a better understanding of the problem at hand. Interviews, a survey of CRG members and document analysis were the primary methods used. Interviews were conducted of some members assigned to the 621st CRG here at JBMDL, due to proximity and accessibility, to gain further knowledge of current maintenance practices within the CRG and to gain a perspective of the problem at hand from member's viewpoints. A telephone interview of a FAA FDSO Maintenance Inspector, Mr. Phil Stauffer, was also performed to gain data on requirements for A&P certification and to better understand what an A&P license authorizes a maintenance technician to do. An in-depth analysis of the history of the CRG, events in which the organization participated in, and the outcomes of those events served as a good starting point. A deeper look into the maintenance training history, what aircraft the technicians were trained on and what aircraft were actually worked during the contingency events was also evaluated. Surveys of maintenance personnel during previous contingencies were also conducted to gain an understanding of the problem area. The case study was analyzed using direct interpretation, categorical aggregation, drawing patterns and naturalistic generalizations methods (McMillan, 2000).

To extend the research, an abbreviated Cost-Benefit Analysis was conducted to assess the feasibility of implementing the final outcome. The Cost-Benefit Analysis looked at the benefits gained from receiving any applicable resolutions to the research problem and the costs associated with implementing those resolutions. The final

outcome of the analysis will give CRG leaders accurate information on which to base a decision on whether to implement any changes or maintain the current mode of training.

ASSUMPTIONS/LIMITATIONS

The first AMC Contingency Response Groups were stood up in 2005. Data will be limited to a very short time frame and to the minimum events that the CRGs took part in during that time frame. Data collected was from any reports written about the events and firsthand knowledge from maintainers and leaders that took part in the events. When conducting interviews and surveys with the 621st CRG maintenance personnel, an assumption has to be made that they are a representative sample of the technicians within all of the active duty CRG organizations. Although both organizations are used interchangeably and both inherently have the same mission, one has to assume that they train the aircraft maintenance technicians in the same manner.

Part IV

RESULTS AND ANALYSIS

The data for this study was fairly easy to obtain and analyze. First, an interview of Captain Brian Cooper of the 818th GMS was performed to gain an initial perspective of how the CRG operates and to understand maintenance concerns related to training on different types of aircraft. This initial interview and the request from CRG and Squadron leadership also helped in building the survey questions. Next a survey was performed of CRG members from the 817th GMS and the 818th GMS stationed at JBMDL. 23 surveys were returned for a 100% return rate. After all the survey results were in, they were aggregated and totaled for each question in the survey. They were then analyzed to determine the most recurring answer to each question. Of note, some members did not follow the instructions completely and answer all questions or deviated from the rating scale provided in the instructions. This was a very small amount of the survey sample and should not affect the results.

19 personnel surveyed fell between the ranks of Staff Sergeant and Senior Master Sergeant. 3 members surveyed were officers. There was 1 Senior Airman in the sample size. This rank structure indicated a fairly mature sample.

To indicate experience in the CRG, the sample was asked to indicate how long they have been assigned to the CRG. 18 of the surveyed members indicated that they had been assigned to the CRG greater than 1 year. 5 members were between 2 and 4 years in the CRG and 11 members indicated that they had been assigned greater than 4 years. These results established the majority of the members surveyed were experienced CRG maintenance technicians.

In order to assess what was needed in a contingency environment, the next question asked was the number of times each member deployed as part of the CRG unit. Only 3 members of the sample size had never deployed. 20 members deployed at least one time. 18 members deployed more than two times, 15 members deployed 3 or more times and 4 members deployed at least 10 times. These results were interpreted as the majority of the sample having deployment experience with the CRG.

The next question asked the members to rate how well they felt they were trained to perform maintenance on the aircraft that they deployed for. The majority of the unit, 17 members, rated that they were at least somewhat prepared while 4 members indicated that they were not well prepared and 3 members indicated they weren't prepared at all.

To establish which aircraft the surveyed members need to be trained and proficient on they were asked to number them from 1 to 10 with 1 being the aircraft that is most needed to be trained on and 10 the least. The C-17 rated the highest in importance for members to be trained on. Interestingly, the C-130 rated second and the C-5 third. The 737 was fourth followed by the 727 and 747 respectfully. Of note, general helicopters and the C-2 aircraft were written in once each.

The next set of data obtained dealt with whether the survey member felt they were trained and proficient on each aircraft listed (see survey for all aircraft types listed). All but 1 member surveyed felt they were proficient and trained on the C-17. 15 members of the 23 surveyed felt they were trained and proficient on the C-5 aircraft and only 2 members felt they were trained and proficient on the C-130. No members felt trained or proficient on any civilian aircraft.

The next question was utilized to try to assess what training method was most critical in order to keep maintenance technicians trained and proficient on the various types of aircraft. C-17 On the Job Training (OJT) and 797 qualifications ranked first followed by C-130 and C-5 respectively. 8 members believed the A&P license would be beneficial to qualification and proficiency. OJT with a civilian airline partner ranked last.

The next question asked if a Job Qualification Standard (JQS) should be developed specifically for CRG maintenance personnel. The AFJQS supplements the Career Field Education and Training Plan by outlining specific skill and task requirements. Air Force Career Field Manager must review and approve any JQS (AFI 36-2201, 2010). 21 of the 23 members surveyed answered yes, that a specific JQS for CRG maintenance should be developed.

COST-BENENFIT ANALYSIS

The Cost-Benefit Analysis for determining cost compared to benefits is fairly straightforward.

Type of Exam	**Place of Exam**	**Cost**	
Prepatory Course	Civilian	$1,375.00	
General Written Exam	Civilian	$150.00	
Airframe Written Exam	Civilian	$150.00	
Oral & Practical Exam	Civilian	$400.00	
		Total	$2,075.00

Table 2. Total Cost for Airframe Courses: All Civilian Courses

Type of Exam	Place of Test	Cost	
Prepatory Course	Civilian	$1,375.00	
General Written Exam	Base Education Office	$0.00	
Airframe Written Exam	Base Education Office	$0.00	
Oral & Practical Exam	Civilian	$400.00	
		Total	$1,775.00

Table 3. Total Cost for Airframe Courses: FAA Approved Military Education Center

As illustrated in Table 1, the total cost of testing and for a prepatory class is $2,075.00. The prepatory class fee was obtained from section 2 above in the Literature Review (Heritage Flight Academy, 2011). The fees for the written exams were taken from the Computer Assisted Testing Service website and the fees for the Oral and Practical exams were taken from the T Black Aviation website. These are mentioned to show that there is some variability in pricing but after checking several websites these cost are about average.

Table 2 indicates $0.00 for the written tests. If the tests are taken at a FAA approved Base Education office there would be no charge for the test. Currently McGuire Air Force Base is working towards getting FAA approval. Travis Air Force Base is already an approved FAA testing site.

To determine total cost each squadron surveyed had approximately 10 members. If the full cost indicated in Table 1 was utilized, the cost would be $20,750.00. If Table 2 was utilized the cost for all 10 members would be $17,750.00. If the commanders

decided to pursue certification for half of the members, the cost would be $10,375.00 and $8,875.00 respectfully.

As far as the need or benefit gained from this training in the CRGs, the 817th GMS Commander and the 818th GMS Commander were queried for input. According to Lt Col Jerry Updegraff of the 817th GMS in an email on March 22, 2011, only 18% of the aircraft the CRG worked in the humanitarian effort in Haiti were AMC "grey tail" jets. This statement signifies the need for training on commercial aircraft by CRG members. In the request for this study, Lt Col Pete Carrabba indicates that the GMS will expand its humanitarian operations portfolio in the future (Carrabba, 2010). The data from the After Action Report from Operation UNIFIED RESPONSE indicates a need for civilian aircraft training. The report illustrates that U.S. civilian aircraft missions were nearly five times the amount of either the C-17 or the C-130 aircraft and over half of the total missions (After Action Report, 2010).

The conclusion to an analysis of cost versus benefit here is clear. With the commanders stating the importance of an increase in the humanitarian portfolio coupled with the data provided from the After Action Report from Operation UNIFIED RESPONSE it is clear that this is an important need that should be addressed. The cost estimates of $10,375.00 and $8,875.00 (depending on the situation indicated in Table 1 or Table 2) to receive training on civilian aircraft for five members in each squadron would provide a substantial benefit to the CRG during a humanitarian operation.

Part V

CONCLUSIONS AND RECOMMENDATIONS

This section addresses the research questions posed by the study, provides a summary of research conclusions, and recommends future research considerations for exploration.

RESEARCH QUESTIONS

There were three questions stated in the introduction to which this research was intended to answer.

1. What aircraft do CRG maintenance personnel need to be qualified and proficient on in order to provide basic maintenance?

CRG maintenance technicians cannot be qualified and proficient on all aircraft types so some decision needs to be made as towards which aircraft will provide the most benefits. According to the data provided by the survey, communication with current CRG Squadron Commanders, and the After Action Report of an actual humanitarian CRG operation, 3 aircraft types and one general aircraft classification were identified. According to AMCI 10-202 V4, CRGs must maintain some C-17 and C-5 maintenance capability. The survey results concurred with this but indicated that the need for training on C-130 aircraft is higher than the need for training on C-5 aircraft. Due to the future sight picture of the CRG in regards to humanitarian operations and due to the amount of civilian aircraft seen in the Haiti effort, a need for the ability to perform general maintenance on civilian aircraft also exists.

2. Are CRG maintenance personnel appropriately trained to provide basic maintenance on worldwide contingency aircraft?

According to the aircraft indicated in the previous answer, CRG maintenance technicians need some additional training to be appropriately trained on in basic maintenance of worldwide contingency aircraft. The survey results indicate that the majority of CRG maintenance technicians feel that they are trained on C-17 and C-5 aircraft basic maintenance practices. Only 2 of 21 technicians surveyed felt they were trained on C-130 aircraft and no technicians felt as though they were trained on civilian aircraft.

3. What general training guidance will help ensure CRG maintenance personnel are qualified and proficient on worldwide contingency aircraft?

The results of the survey indicate a few items can help increase training of CRG maintenance personnel so that they are more qualified and proficient on worldwide contingency aircraft. From the research conducted, a training program for C-130s and civilian aircraft needs to be implemented. Also, a need exists for a standardized JQS to be established so all CRG maintainers know what they need to be trained on and so that they are all trained the same. A JQS will also establish a baseline for all CRG maintainers to look towards to ensure they are receiving the appropriate training and qualifications.

SUMMARY: RESEARCH CONCLUSIONS AND RECOMMENDATIONS

The data from the survey clearly indicates that maintenance technicians are qualified and trained on C-17 aircraft. This may be due to the fact that C-17s are based at

JBMDL and access to training events is made easier by proximity. Qualification and proficiency can be maintained by continuing the current training program for the C-17.

Data gained on the C-5 aircraft also indicates a fairly robust training program as the majority of the members surveyed felt trained and proficient on this aircraft type. Although the After Action Report from Operation UNIFIED RESPONSE indicates that this aircraft was not utilized for that humanitarian operations the AMCI 202V4 instruction states that some C-5 capability must be maintained. The CRG maintenance technicians go to Dover Air Force Base, DE to get the necessary training. This method of training seems to be sufficient, according to the survey, and should be maintained. The use of the C-5 aircraft for contingency operations needs further research and will be discussed in that section.

The survey results showed almost no training on C-130 aircraft. Of note, this aircraft was ranked second in the survey in importance to be trained on, above the C-5. Furthermore, the After Action Report from Operation UNIFIED RESPONSE does not show any C-5 deliveries but indicates the C-130 as having the greatest amount of missions out of all grey tail aircraft. The Delaware Air National Guard in New Castle, DE has 8 C-130 aircraft that could possibly provide CRG maintenance technicians the necessary training. A similar relationship with the 116th Aircraft Maintenance Squadron (AMXS) at New Castle could be developed as is currently being exercised at Dover AFB, DE to gain C-5 training and experience. Another possibility might be to work with active duty flying units to do an off station training opportunity with Little Rock Air Force Base, AR on a recurring basis. Depending on costs, another option would be to send

CRG maintenance technicians to Little Rock Air Force Base, AR for qualification and training on a recurring basis. The overall recommendation is for the CRGs to develop a C-130 maintenance training plan.

The survey showed no training and proficiency on civilian aircraft. According to the future growth of humanitarian relief efforts and the number of civilian aircraft encountered during these events, qualification and training is recommended. Depending on funds available the squadron could fund all maintenance technicians. As charted above in Tables 1 and 2 the cost would be approximately $20,750.00 for all inclusive or $17,750.00 if the test are taken at a FAA approved Base Education Center. The squadron could reduce this cost by only certifying half of the maintenance technicians for a cost of 10,375.00 and $8,875.00 respectfully. This course of action seems to be the more plausible course given this time of fiscal restraint. Also, according to Mr. Phil Stauffer of the, FAA FSDO Maintenance Inspector, maintenance technicians can work under an airframe licensed technician (Stauffer, 2010). Of note, the costs given in this paper are for an airframe license. This allows a maintenance technician to perform basic aircraft maintenance and servicing but does not allow for powerplant (engine) maintenance. The cost would increase by approximately $150.00 more for each person to receive the powerplant certification.

Although Mr. Stauffer states that continued experience on the aircraft is not necessary to be legally able to perform maintenance on civilian aircraft, as long as they receive the airframe certification, it is recommended (Stauffer, 2010). CRG maintenance technicians can possibly get this training at Dover Air Force Base while working with the

Transient Alert Flight in the 436 AMXS. This should provide some hands on experience for the maintenance technicians.

Another area for action is the development of a JQS. The CRG maintenance field is so unique that the command Career Field Manager should look into developing a specific JQS for CRG maintenance technicians. This would ensure that all CRG maintenance technicians' training and qualifications are standardized.

AREAS FOR FURTHER RESEARCH

This research focused on a very small portion of the CRGs "open the air base" capabilities. Another area that can be investigated in regards to what aircraft should be included in training would be that of the aerial porters. The aerial port is a vital part of the CRG's capability. A similar assessment to this research should be performed to ensure the aerial port Airmen are qualified and maintain proficiency on the right type of aircraft.

As mentioned earlier in the paper, further research should be conducted on which aircraft should be utilized in an "open the airbase" contingency. With the assault landing capability, maneuverability and shorter runway usage of the C-17 and C-130, it appears that these military aircraft would be the weapon system of choice for "open the airbase" contingencies. The C-5 aircraft's size and maintenance performance are some other reasons why it might not be the best choice when initially trying to open an air base. Landing could be restricted to C-5s due to a damaged runway where the C-17 and C-130 might be able to land. The possibility of shifting normal operations missions to the C-5 while utilizing the C-17 and C-130 aircraft for the opening of an air base might prove

beneficial. In fact, according to the After Action Report from Operation UNIFIED RESPONSE, C-5 aircraft were not utilized.

Another area for investigation might be an Airman's service commitment to the CRG. It may prove beneficial to keep experienced Airmen assigned to the CRG for longer periods of time. The unique capability that an experienced CRG Airman brings to the CRG takes time to build. Adding an increase in investment in them with the A&P licensure adds a little more weight to this concept. The number of deployments an Airman gets tasked for and family need to be considered when investigating this area.

Appendix A

Contingency Response Groups: Analysis of Maintenance Training
Advanced Study of Air Mobility Graduate Research Paper
Unit Member Survey

Objective:

- This research will study your squadron and look at Contingency Response Group maintenance personnel training.
- Items of interest to me are how maintenance personnel are trained and maintain proficiency on the most likely aircraft experienced in a contingency environment.
- I ask that you complete this survey by 14 November 2010 and return to Capt Brian Cooper or as soon as you are finished.
- The final outcome of this research will be a suggestion to senior leaders on how best to train Contingency Response Group maintenance personnel.

Instructions:

- Please answer the questions to the best of your ability.
- If an appropriate answer to a question is not listed, please write in the appropriate answer and rank order it with the rest if the question is asking for a rank order.
- You are assured of non-attribution in respect to the responses you provide.

1. Please place an X by your rank?

__Lt Col	__Chief Master Sergeant	___Staff Sergeant
__Major	__Senior Master Sergeant	___Senior Airman
__Captain	__Master Sergeant	___Airman First Class
__Lieutenant	__Technical Sergeant	___Airman

2. Please circle how long you have been assigned to a CRG.

< 6 Months__ > 6 months to 1 year__ > 1 year to 2 years__

> 2 years to 3 years__ > 3 years to 4 years__ > 4 years___

3. Please circle the number of times you have deployed as part of the unit.

0 1 2 3 4 5 6 7 8 9 10 >10

4. If you deployed, how well did you feel you were trained to perform maintenance on the aircraft that arrived? Please rank on a scale, 1 being not prepared and 10 being very prepared.

0 1 2 3 4 5 6 7 8 9 10 N/A

5. Please number each type of aircraft in order from 1 being the aircraft maintenance personnel need to be trained and proficient on the most to 8 being the type of aircraft maintenance personnel need the least amount of training. If an aircraft is not listed please write that aircraft in and number it appropriately.

___C-17 ___C-5 ___C-130 ___727 ___737 ___747

___DC-8 ___AN-124

6. Please place a Y for yes and an N for no if you think maintenance personnel are trained and proficient on each aircraft type (if you wrote in an aircraft in the previous question, please add it here and place either a Y or N).

C-17 __ C-5 __ C-130__ 727__ 737__ 747__ DC-8__ AN-124__

7. What methods do you think should be utilized to train and maintain proficiency on aircraft stated in question 5? Please rank order, 1 being the most beneficial method and 5 being the least beneficial method. Please add any additional methods and rank order appropriately.

____A&P license

____OJT with civilian airline partner on recurring basis

____OJT and 797 qualification on C-17

____OJT and 797 qualification on C-5

____OJT and 797 qualification on C-130

8. Should a Job Qualification Standard be developed specifically for Contingency Response Group maintenance personnel? Circle Yes or No.

Yes No

Appendix B

Contingency Response Groups: Analysis of Maintenance Training
Advanced Study of Air Mobility Graduate Research Paper
Unit Member Survey Results

Objective:

- This research will study your squadron and look at Contingency Response Group maintenance personnel training.
- Items of interest to me are how maintenance personnel are trained and maintain proficiency on the most likely aircraft experienced in a contingency environment.
- I ask that you complete this survey by 14 November 2010 and return to Capt Brian Cooper as soon as you are finished.
- The final outcome of this research will be a suggestion to senior leaders on how best to train Contingency Response Group maintenance personnel.

Instructions:

- Please answer the questions to the best of your ability.
- If an appropriate answer to a question is not listed, please write in the appropriate answer and rank order it with the rest if the question is asking for a rank order.
- You are assured of non-attribution in respect to the responses you provide.

1. Please place an X by your rank?

_0__Lt Col	_0_Chief Master Sergeant	_7__Staff Sergeant
_0__Major	_2_Senior Master Sergeant	_1__Senior Airman
_2_Captain	_3_Master Sergeant	_0__Airman First Class
_1_Lieutenant	_ 7_Technical Sergeant	_0_Airman

2. Please circle how long you have been assigned to a CRG.

< 6 Months_3 > 6 months to 1 year_2 > 1 year to 2 years_2

> 2 years to 3 years_1 > 3 years to 4 years_4 > 4 years_11

3. Please circle the number of times you have deployed as part of the unit.

0	1	2	3	4	5	6	7	8	9	10	>10
3	2	3	2	3	3	1	1	1	0	4	

4. If you deployed, how well did you feel you were trained to perform maintenance on the aircraft that arrived? Please rank on a scale, 1 being not prepared and 10 being very prepared.

0	1	2	3	4	5	6	7	8	9	10	N/A
3	0	0	0	1	2	2	2	4	4	3	2

5. Please number each type of aircraft in order from 1 being the aircraft maintenance personnel need to be trained and proficient on the most to 8 being the type of aircraft maintenance personnel need the least amount of training. If an aircraft is not listed please write that aircraft in and number it appropriately.

	1	2	3	4	5	6	7	8	9
C17	16	7	0	0	0	0	0	1	0
C5	1	3	15	0	0	2	2	0	0
C130	9	10	3	0	0	0	1	0	0
727	0	0	1	2	9	3	4	2	1
737	0	0	1	7	5	5	3	1	0
747	0	0	2	7	1	5	4	2	0
DC8	0	1	0	1	2	3	5	8	1
AN124	1	0	1	4	5	1	1	10	0
Helo	0	0	0	0	0	0	1	0	0
C2	0	0	0	0	0	1	0	0	0
Totals	**27**	**21**	**23**	**21**	**22**	**20**	**21**	**24**	**2**

6. Please place a Y for yes and an N for no if you think maintenance personnel are trained and proficient on each aircraft type (if you wrote in an aircraft in the previous question, please add it here and place either a Y or N).

C-17 (Y)22(N)1 C-5 (Y) 15(N)8 C-130(Y)2(N)21 727(Y)0(N)23 737(Y)0(N)23 747(Y)0(N)23 DC-8(Y)0(N)23 AN-124(Y)0(N)23

7. What methods do you think should be utilized to train and maintain proficiency on aircraft stated in question 5? Please rank order, 1 being the most beneficial method and 5 being the least beneficial method. Please add any additional methods and rank order appropriately.

	1	2	3	4	5
OJT and 797 qualification on C-17	16	1	1	2	3
OJT and 797 qualification on C-5	5	5	8	3	2
OJT and 797 qualification on C-130	6	9	8	0	0
A&P license	6	2	0	10	5
OJT civilian airline partner on recurring basis	0	5	2	5	9

8. Should a Job Qualification Standard be developed specifically for Contingency Response Group maintenance personnel? Circle Yes or No.

Yes 21 No 2

Appendix C

Human Experimentation Exemption Approval

DEPARTMENT OF THE AIR FORCE
AIR FORCE INSTITUTE OF TECHNOLOGY
WRIGHT-PATTERSON AIR FORCE BASE OHIO

8 Dec 2010

MEMORANDUM FOR WILLIAM CUNNINGHAM, PH.D.

FROM: Alan Heminger, Ph.D.
AFIT IRB Research Reviewer
2950 Hobson Way
Wright-Patterson AFB, OH 45433-7765

SUBJECT: Approval for exemption request from human experimentation requirements (32 CFR 219, DoDD 3216.2 and AFI 40-402) for study titled "Contingency Response Groups: An Analysis of Maintenance Training"

1. Your request was based on the Code of Federal Regulations, title 32, part 219, section 101, paragraph (b) (2) Research activities that involve the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior unless: (i) Information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) Any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

2. Your study qualifies for this exemption because you are not collecting sensitive data, which could reasonably damage the subjects' financial standing, employability, or reputation. Further, the demographic data you are collecting cannot realistically be expected to map a given response to a specific subject.

3. This determination pertains only to the Federal, Department of Defense, and Air Force regulations that govern the use of human subjects in research. Further, if a subject's future response reasonably places them at risk of criminal or civil liability or is damaging to their financial standing, employability, or reputation, you are required to file an adverse event report with this office immediately.

ALAN HEMINGER, PH.D.
AFIT Research Reviewer

cc. Maj Brian P. Mayer, USAF
Co-investigator
Judith Copler, Contractor
AFIT Sponsored Programs Office

Appendix D

Blue Dart Submission Form

First Name: __Brian_____ Last Name: __Mayer_____

Rank (Military, AD, etc.): __Major_____ Designator #AFIT/IMO/ENS/11-09

Student's Involved in Research for Blue Dart:_____
_____

Position/Title: __Student__ _____

Phone Number: _(609) 754-7743_____ E-mail: brian.mayer@us.af.mil

School/Organization: _Advanced Study of Air Mobility (ASAM)_____

Status: [X] Student [ ] Faculty [ ] Staff [ ] Other

Optimal Media Outlet (optional): _____

Optimal Time of Publication (optional): _____

General Category / Classification:

[ ] core values	[ ] command	[ ] strategy
[ ] war on terror	[ ] culture & language	[ ] leadership & ethics
[ ] warfighting	[ ] international security	[ ] doctrine

[X] other (specify): Enhanced Efficiency and Effectiveness of Resources

Suggested Headline: Contingency Response Groups: An Analysis of Maintenance Training_____

Keywords: Contingency Response Group, maintenance, training

Blue Dart: In October 2001, the Chief of Staff of the Air Force directed the stand-up of Task Force Enduring Look (TFEL) to analyze, document and report on the ongoing efforts in Operations NOBLE EAGLE and ENDURING FREEDOM (Wathen, 2004). The task force's "Quick Look no. 9" identified air traffic control and air field operations as areas that required improvement. It was assessed that in today's expeditionary environment, the Air Force needed a unique subset of capabilities designed specifically to respond rapidly to contingencies as well as secure and protect airfields, rapidly assess and

open air bases, and perform initial air base operations to ensure a smooth transition for a more permanent team to take over (Walthen, 2004). Out of this inquiry and subsequent findings spawned the development of the Contingency Response Group (CRG). The Air Mobility Command (AMC) CRGs stood up in 2005 with a west-coast element stationed at Travis Air Force Base in California (615th Contingency Response Group) and an east-coast element stationed at Joint Base McGuire-Dix-Lakehurst (621st Contingency Response Group) (Welser, 2005). Although there are many job sets to opening, protecting, and operating an air base, this research will specifically focus on the aircraft maintenance capabilities of operating an air base.

CRG aircraft maintenance personnel are tasked to perform "quick turn" maintenance on multiple types of aircraft. Although the "quick turn" term can be misleading, in general to an aircraft maintenance technician it means to be able to recover service and launch an aircraft. Sometimes this involves changing worn tires, servicing oil, fuel or hydraulic fluid, towing, jacking and several other basic maintenance tasks.

CRG leaders continue to search for the most effective way to keep their maintenance personnel trained and proficient on different types of aircraft used in contingency operations. With the recent increase of humanitarian operations across the globe, leaders are looking to provide CRG personnel quality training on civilian aircraft while maintaining proficiency on key military aircraft.

This paper is qualitative in nature and utilizes a case study approach to present the types of aircraft the CRG should focus on in training CRG maintenance technicians. The paper continues by offering data and facts on how to get this training and ultimately makes recommendations to the commanders for decision points. A variety of tools were

used to gather data, including CRG maintenance technician surveys, personal interviews of key personnel, telephone interviews, literature research and email. The units studied were members of the 818th Global Mobility Squadron and the 819th Global Mobility Squadron assigned under the 621st CRG.

This study seeks answers to three research questions:

1. What aircraft do CRG maintenance personnel need to be qualified and proficient on in order to provide basic maintenance?
2. Are CRG maintenance personnel appropriately trained to provide basic maintenance on worldwide contingency aircraft?
3. What general training guidance will help ensure CRG maintenance personnel are qualified and proficient on worldwide contingency aircraft?

The results of the research indicate that C-17, C-130, C-5 and commercial aircraft are important for CRG maintainers to be trained on for humanitarian contingencies. Surveyed members specified that that the C-130 aircraft ranked higher in importance to be trained on than C-5 aircraft. C-17 and C-5 aircraft have a requirement levied by instruction for the CRG units to possess some capability on.

To increase the portfolio of maintenance capability for humanitarian contingencies, it is recommended that the CRG maintain the current C-17 and C-5 training while establishing a training program to train and qualify maintenance personnel on C-130 and commercial aircraft.

The views expressed in this article are those of the author and do not reflect the official policy or position of the United States Air Force, Department of Defense, or the US Government.

Appendix E

Quad Chart

Contingency Response Groups: An Analysis of Maintenance Training

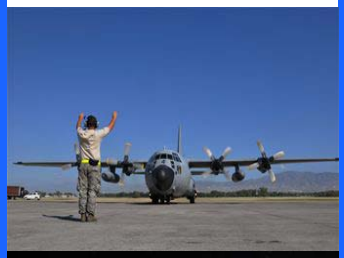
Maj Brian Mayer
Advisor: Dr. Bill Cunningham
Advanced Study of Air Mobility

Introduction

The concept of a Contingency Response Group (CRG) as a "quick reaction force" is still fairly new. The initial trial in Operation ALLIED FORCE proved a success but as time passes the necessity to transform this "quick reaction force" to be ready to react to "today's" crisis becomes imperative. With the increasing involvement in humanitarian relief and the increase in civilian aircraft used in these efforts, the proper balance of which aircraft CRG members are trained and qualified on needs to be reevaluated.

Research Questions

- What aircraft do CRG maintenance personnel need to be qualified and proficient on in order to provide basic maintenance?
- Are CRG maintenance personnel appropriately trained to provide basic maintenance on worldwide contingency aircraft?
- What general training guidance will help ensure CRG maintenance personnel are qualified and proficient on worldwide contingency aircraft?



Methodology

A case study methodology was utilized for this project. Interviews of key leaders, a FAA FDSO Maintenance Inspector, a survey of CRG members and document analysis were the primary tools utilized. The case study was analyzed using direct interpretation, categorical aggregation, drawing patterns and naturalistic generalizations methods (McMillan, 2000).

Conclusions and Recommendations

- CRG maintainers should be qualified and proficient on C-17, C-130, C-5 and some technicians should be A&P certified
- CRG maintainers are not appropriately trained on C-130 and civilian aircraft
- A training program needs to be developed and implemented to train CRG maintainers on C-130 and civilian aircraft
- A JQS for CRG maintainers should be developed to ensure appropriate and standardized training for all CRG maintainers
- Reevaluate the need/amount of C-5 training

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14. ABSTRACT The concept of a Contingency Response Group (CRG) as a "quick reaction force" is still relatively new. With the increasing involvement in humanitarian relief efforts and the increase in civilian aircraft used in these efforts, the proper balance of what aircraft CRG members are being trained and qualified on needs to be reevaluated. This paper is qualitative in nature and uses a case study approach to present the types of aircraft the CRG should focus on in training CRG maintenance technicians. The paper continues by offering data and facts on how to get this training and ultimately makes recommendations to commanders for a decision point. A variety of tools were used to gather data, including surveys, interviews, literature research and email. The units studied were members of the 818th Global Mobility Squadron and the 819th Global Mobility Squadron. The results of the research indicate that C-17, C-130, C-5 and commercial aircraft are important for CRG maintainers to be trained on for humanitarian contingencies. To increase the portfolio of maintenance capability for humanitarian contingencies, it is recommended that the CRG maintain the current C-17 and C-5 training while establishing a training program to train maintenance personnel on C-130 and commercial aircraft.

15. SUBJECT TERMS
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